with the practice being involved in all value chain activities:

- Plan Risk management provides essential inputs to the organization's strategy and planning, with a focus on risks that can drive variability of outcomes. These include:
  - shifts in customer demand and priorities
  - legal and regulatory changes
  - competitors
  - dependencies on suppliers and partners
  - technological changes
  - conflicting stakeholder requirements.
- Improve All improvement initiatives should be assessed and continually controlled by risk management. The practice establishes an important perspective for improvement prioritization, planning, and review.
- Engage The risk management practice helps to identify key stakeholders and optimize engagement based on such information as risk appetite and risk profiles.
- Design and transition Products and services should be designed to address prioritized risks. For example, they should be scalable to support changes in demand over time. For the organization, new or changed services carry varying levels of risk which should be identified and assessed before the change is approved. If approved, the risks should be managed as part of the change, including releases, deployments, and projects.
- Obtain/build Risk management should inform decisions about the obtaining or building of products, services, or service components.
- Deliver and support Risk management helps to ensure that the ongoing delivery of products and services is maintained at the agreed level and that all events are managed according to the risks that they introduce.

5.1.11 Service financial management

Key message

The purpose of the service financial management practice is to support the organization's strategies and plans for service management by ensuring that the organization's financial resources and investments are being used effectively.

Service financial management supports decision-making by the governing body and management of the organization regarding where to best allocate financial resources. It provides visibility into the budgeting, costing, and accounting activities related to the products and services. To be effective in the context of the SVS, this practice needs to be aligned with the organization's policies and practices for portfolio management, project management, and relationship management.

Finance is the common language which allows the organization to communicate effectively with its stakeholders. Service financial management is responsible for managing the budgeting, costing, accounting, and charging for the activities of an organization, acting as both service provider and service consumer:

- Budgeting/costing This is an activity focused on predicting and controlling the income and expenditure of money within the organization. Budgeting consists of a periodic negotiation cycle to set budgets and ongoing monitoring of the current budgets. To accomplish this objective, it focuses on capturing forecasted and actual service demand. It translates this demand into anticipated operating and project costs used for setting budgets and rates to ensure adequate funding for products and services. Service-based budgeting seeks to understand the budget and establish funding models based on the full cost of providing or consuming a service.
- Accounting This activity enables the organization to account fully for the way its money is spent, allowing it to compare forecast vs actual costs and expenditures (particularly the ability to identify usage and costs by customer, service, and activity/cost centre). It usually involves accounting systems, including ledgers, charts of accounts, and journals.
- Charging This activity is required to formally invoice service consumers (usually external) for the services provided to them. It is important to note that while charging is an optional practice, all services require a funding model, because all costs need to be adequately funded by an agreed method.

Figure 5.11 shows the contribution of service financial management to the service value chain, with the practice being involved in all value chain activities:

- Plan Plans at all levels need funding based on information, including financial. Service financial management supports planning with budgets, reports, forecasts, and other relevant information.
- Improve All improvements should be prioritized with return on investment in mind. Service financial management provides tools and information for improvements evaluation and prioritization.
- Engage Financial considerations are important for establishing and maintaining service relationships with service consumers, suppliers, and partners. For some stakeholders (investors, sponsors) the financial aspect of the relationship is the

most important. The practice supports this value chain activity by providing financial information.

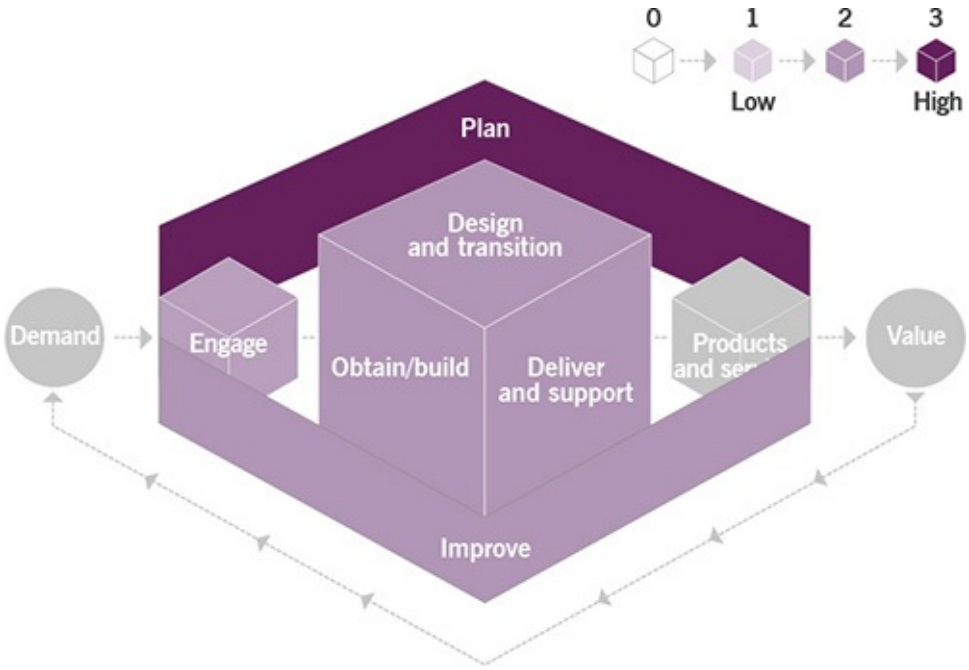

Figure 5.11 Heat map of the contribution of service financial management to value chain activities

- Design and transition Service financial management helps to keep this activity cost-effective by providing the means for financial planning and control. It also ensures transparency of costs for products and services for the service provider, accounting for design and transition expenditures.
- Obtain/build Obtaining resources of all types is supported by budgeting (to ensure sufficient funding) and accounting (to ensure transparency and evaluation).
- Deliver and support Ongoing operational costs are a significant part of the organization's expenditures. For commercial organizations, ongoing service delivery activities are also the source of income. Service financial management helps to ensure sufficient understanding of both. Charging (if applicable) supports the service provider and the service consumer in their relationships with billing and reporting.

Evolution of financial management with new technology

Financial management refers to the efficient and effective management of money in the most appropriate manner to accomplish the financial objectives of the organization. Since its inception, the financial management discipline has gone through various degrees of change, improvement, and innovation. A key component of this change has been the emergence of new technology.

Many technological developments have impacted upon financial management, but the three key innovations are the introduction of a greater number of digital technologies, blockchain, and IT budgets and payment models.

Digital technologies

Major financial institutions are now analysing and using the latest technologies such as the cloud, big data, analytics, and artificial intelligence (AI) to gain, or even just to maintain, competitive advantage in the market place. However, new financial organizations are also using these technologies and starting operations without any legacy IT, technical debt, or bureaucratic processes, which means they tend to be more Agile.

Big data and analytics are being used by financial organizations to gain deeper insight into, and understanding of, their customers. The amount of data being captured is phenomenal and requires scalable computing power to process the data efficiently and cost-effectively. In return, this deeper customer understanding is causing financial organizations to develop new and innovative products and services. Data is now being referred to as the 'new oil', as organizations are scrambling to capture, analyse, and exploit it.

Blockchain

Another evolution in financial management is happening through a specific innovation called blockchain, again enabled only through cloud-based services. Initially blockchain was developed to enable the de-centralized management of crypto-currencies, allowing transactions to be audited and verified automatically and inexpensively.

Blockchain technologies are used to manage public digital ledgers. These digital ledgers record transactions across many globally distributed computers. The distribution of records ensures that each record cannot be changed without the alteration of all subsequent records (also known as blocks) and without the consensus of the entire distributed ledger (also called the network).

Global financial institutions are researching how this blockchain technology can provide them with competitive advantage by streamlining back-office functions and reducing settlement rates for banking transactions. New financial organizations are investigating blockchain to deliver alternative banking functions at a fraction of the cost and overheads of traditional banks.

IT budgets and payment models

The emergence of new technology has not just affected financial organizations, but also the way that every organization manages its IT services from a financial perspective. Much of the current wave of technological

evolution has been enabled by cloud computing, and this seems likely to continue for the foreseeable future. This has led to a major change in how IT services are obtained, funded, and paid for by organizations.

Traditionally, IT resources were obtained using upfront capital expenditure (CAPEX). However, under the cloud model, the provision of IT infrastructure, platforms, and software is provided 'as a service'. This model generally uses subscription-based or pay-as-you-use charging mechanisms which are paid for out of operational expenditure (OPEX).

Another area that has seen change is the organization's approach to setting and managing IT budgets. Flexible IT budgets are required to meet the costs of scaling cloud-based services in an Agile and on-demand way. Fixed IT budgets, often forecast months in advance, struggle to account for the scaling of IT resources in this way.

Procurement rules within organizations are also having to change. There remains a place for fixed-price IT projects and services; however, cloud-based digital services are generally sold under a variable-price model, i.e. the more you use and consume, the more you pay, and vice versa. Therefore, those organizations that have not updated their procurement rules to allow them to buy variable-priced IT resources will face a large self-made barrier preventing them from using cloud-based digital services. To be as effective as possible, organizations must update their policies and educate their staff to ensure that they can purchase IT under a variable-priced model.

5.1.12 Strategy management

Key message

The purpose of the strategy management practice is to formulate the goals of the organization and adopt the courses of action and allocation of resources necessary for achieving those goals. Strategy management establishes the organization's direction, focuses effort, defines or clarifies the organization's priorities, and provides consistency or guidance in response to the environment.

The starting point for strategy management is to understand the context of the

organization and define the desired outcomes. The strategy of the organization establishes criteria and mechanisms that help to decide how to best prioritize resources, capabilities, and investment to achieve those outcomes, while the practice ensures that the strategy is defined, agreed, maintained, and achieved.

The objectives of strategy management are to:

- analyse the environment in which the organization exists to identify opportunities that will benefit the organization
- identify constraints that might prevent the achievement of business outcomes and define how those constraints could be removed or their effects reduced
- decide and agree the organization's perspective and direction with relevant stakeholders, including its vision, mission, and principles
- establish the perspective and position of the organization relative to its customers and competitors. This includes defining which services and products will be delivered to which market spaces and how to maintain competitive advantage
- ensure that the strategy has been translated into tactical and operational plans for each organizational unit that is expected to deliver on the strategy
- ensure the strategy is implemented through execution of the strategic plans and coordination of efforts at the strategic, tactical, and operational levels
- manage changes to the strategies and related documents, ensuring that strategies keep pace with changes to internal and external environments and other relevant factors.

Strategy management is often seen as the responsibility of the senior management and governing body of an organization. It enables them to set the objectives of the organization, to specify how the organization will meet those objectives, and to prioritize the investments that are required to meet them. However, in today's complex, fast-changing environment, traditional strategy practices, based on careful deliberation, extensive research, and scenario planning, are also evolving. Strategy is becoming more fluid and there is an increased focus on establishing the essential purpose and principles of an organization, which can serve as the guiding direction for all its actions, even as circumstances change. For example, a Lean strategy process can be used to balance the extremes of rigid planning and uncontrolled experimentation. The strategy provides the overall direction and alignment of the organization, serving as both a screen that innovative ideas must pass and a basis for evaluating the success of the SVS. It encourages employees to be creative, while ensuring that they are in harmony with the organization and pursue only valuable opportunities.

Strategy must enable value creation for the organization. A good business model describes the means of fulfilling an organization's objectives. The strategy of the organization should include some way to make its services and products uniquely

valuable to its customers; it must therefore define the organization's approach for delivering better value. The need for a strategy is not limited to larger organizations; it is just as important for smaller ones, allowing them to have a clear perspective, positioning, and plans to ensure that they remain relevant to their customers.

Customers want solutions that break through performance barriers and achieve higher-quality outcomes with little or no increase in cost. Such solutions are usually made available through innovative products and services. The strategy should balance the organization's need to deliver both efficient and effective operations with innovation and future-focused activities.

The value of products and services from either the customer's or the organization's perspective may alter over time due to changing conditions, events, or other factors outside an organization's control. Strategy management ensures a carefully considered approach to the organization's relationships with customers, as well as both agility and resilience in dealing with the variations in value that define those relationships.

A high-performance strategy is one that enables an organization to consistently outperform competing alternatives over time, across business cycles, during industry disruptions, and when changes in leadership occur. It should be focused on what needs to be done across the organization to facilitate value creation.

Figure 5.12 shows the contribution of strategy management to the service value chain, with the practice being involved in all value chain activities:

- Plan Strategy management ensures that the organization's strategy has been translated into tactical and operational plans for each organizational unit that is expected to deliver on the strategy.

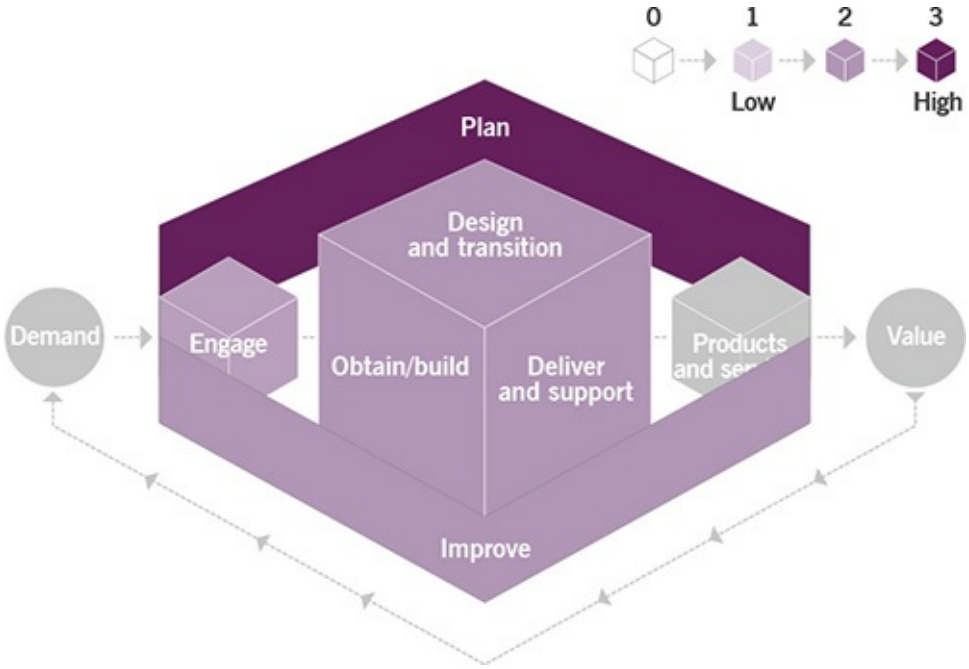

Figure 5.12 Heat map of the contribution of strategy management to value chain activities

- Improve Strategy management provides strategy and objectives to be used to prioritize and evaluate improvements.
- Engage When opportunities or demand are identified by the organization, the decisions about how to prioritize these are based upon the organization's strategy plus the risk assessment and resource availability.
- Design and transition, obtain/build, and deliver and support Strategy management ensures the strategy is implemented through execution of the strategic plans in coordination with these activities. It also provides feedback to enable the measurement and evaluation of products and services during design and transition.

5.1.13 Supplier management

Key message

The purpose of the supplier management practice is to ensure that the organization's suppliers and their performances are managed appropriately to support the seamless provision of quality products and services. This includes creating closer, more collaborative relationships with key suppliers to uncover and realize new value and reduce the risk of failure.

Activities that are central to the practice include:

- Creating a single point of visibility and control to ensure consistency This should be across all products, services, service components, and procedures provided or operated by internal and external suppliers, including customers acting as suppliers.
- Maintaining a supplier strategy, policy, and contract management information
- Negotiating and agreeing contracts and arrangements Agreements need to be aligned with business needs and service targets. Contracts with external suppliers might need to be negotiated or agreed through the legal, procurement, commercial, or contracts functions of the organization. For an internal supplier there will need to be an internal agreement.
- Managing relationships and contracts with internal and external suppliers This should be done when planning, designing, building, orchestrating, transitioning,

and operating products and services, working closely with procurement and performance management.

- Managing supplier performance Supplier performance should be monitored to ensure that they meet the terms, conditions, and targets of their contracts and agreements, while aiming to increase the value for money obtained from suppliers and the products/services they provide.

5.1.13.1 Sourcing, supplier strategy, and relationships

The supplier strategy, sometimes called the sourcing strategy, defines the organization's plan for how it will leverage the contribution of suppliers in the achievement of its overall service management strategy.

Some organizations may adopt a strategy that dictates the use of suppliers only in very specific and limited circumstances, while another organization may choose to make extensive use of suppliers in product and service provision. A successful sourcing strategy requires a thorough understanding of an organization's objectives, the resources required to deliver that strategy, the environmental (e.g. market) factors, and the risks associated with implementing specific approaches.

There are different types of supplier relationship between an organization and its suppliers that need to be considered as part of the organization's sourcing strategy. These include:

- Insourcing The products or services are developed and/or delivered internally by the organization.
- Outsourcing The process of having external suppliers provide products and services that were previously provided internally. Outsourcing involves substitution, i.e. the replacement of internal capability by that of the supplier.
- Single source or partnership Procurement of a product or service from one supplier. This can either be a single supplier who supplies all services directly or an external service integrator who manages the relationships with all suppliers and integrates their services on behalf of the organization. These close relationships (and the mutual interdependence they create) foster high quality, reliability, short lead times, and cooperative action.
- Multi-sourcing Procurement of a product or service from more than one independent supplier. These products and services can be combined to form new services which the organization can provide to internal and external customers. As organizations place more focus on increased specialization and compartmentalization of capabilities to increase agility, multi-sourcing is increasingly a preferred option. Traditionally organizations have managed these suppliers separately across different parts of the organization, but there is a move towards developing an internal service integration capability or selecting an external service integrator.

Individual suppliers can provide support services and products that independently have a relatively minor and fairly indirect role in value generation, but collectively make a much more direct and important contribution to this and the implementation of the organization's strategy.

5.1.13.2 Evaluation and selection of suppliers

The organization should evaluate and select suppliers based on:

- Importance and impact The value of the service to the business, provided by the supplier
- Risk The risks associated with using the service
- Costs The cost of the service and its provision.

Other important factors in evaluating and selecting suppliers include the willingness or feasibility of a supplier to customize its offerings or work cooperatively in a multi-supplier environment; the level of influence of the organization or service integrator on the supplier's performance; and the degree of dependence of one supplier on other suppliers.

5.1.13.3 Activities

Activities of the supplier management practice include:

- Supplier planning The purpose of this activity is to understand new or changed service requirements and review relevant enterprise documentation to develop a sourcing strategy and supplier management plan, working in conjunction with other practices such as business analysis, portfolio management, service design, and service level management.
- Evaluation of suppliers and contracts The purpose of this activity is to identify, evaluate, and select suppliers for the delivery of new or changed business services.
- Supplier and contract negotiation The purpose of this activity is to develop, negotiate, review, update, finalize, and award supplier contracts. The failure of negotiations will trigger a new contract, an updated contract, or a contract termination.
- Supplier categorization This procedure aims to categorize suppliers on a periodic basis and after the awarding of new or updated contracts. Commonly used categories include strategic, tactical, and commodity suppliers.
- Supplier and contract management The purpose of this activity is to ensure that the organization obtains value for money and the delivery of the agreed performance of the supplier against the contract and targets.
- Warranty management The purpose of this activity is to manage warranty

requirements or clauses and make warranty claims when a warranty issue arises, in conjunction with performance management.

- Performance management This activity includes the setup and continuous tracking of operational measures that have been mutually agreed with internal and external suppliers. It focuses on the key measures, which can then be consolidated on a supplier scorecard. Monitoring will allow for the identification of systemic problems and improvement opportunities and provide a basis for reporting.
- Contract renewal and/or termination This procedure aims to manage contract renewals and terminations, which are triggered by either specific or periodic reviews of supplier performance.

5.1.13.4 Service integration

Service integration is responsible for coordinating or orchestrating all the suppliers involved in the development and delivery of products and services. It focuses on the end-to-end provision of service, ensuring control of all interfaces and outcomes from suppliers, and facilitating collaboration between suppliers. An organization can either perform the role of service integrator itself, or use a third-party service integrator. It is possible to develop a hybrid model, where the organization is responsible for some of the service integration function and augments that capability with that of an external service integrator. The service integration function can also be operated by a lead supplier. The service integrator is also responsible for assurance; this includes performance management and reporting, defining roles and responsibilities, maintaining relationships across all parties, and heading regular forums and steering committees to address issues, agree priorities, and make decisions.

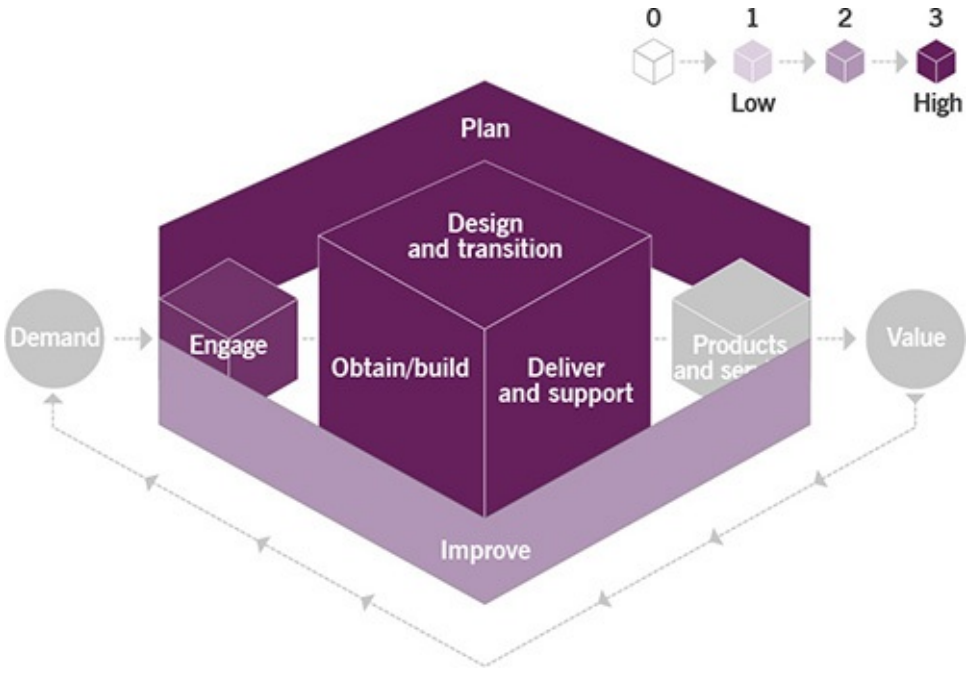

Figure 5.13 Heat map of the contribution of supplier management to value chain activities

Figure 5.13 shows the contribution of supplier management to the service value chain, with the practice being involved in all value chain activities:

- Plan Supplier management provides the organization's approved sourcing strategy and plan.
- Improve The practice identifies opportunities for improvement with existing suppliers, is involved in the selection of new suppliers, and provides ongoing supplier performance management.
- Engage Supplier management is responsible for engaging with all suppliers and for the evaluation and selection of suppliers; for negotiating and agreeing contracts and agreements; and for ongoing management of supplier relationships.
- Design and transition Supplier management is responsible for defining requirements for contracts and agreements related to new or changed products or services, in alignment with the organization's needs and service targets.
- Obtain/build Supplier management supports the procurement or obtaining of products, services, and service components from third parties.
- Deliver and support Supplier performance for live services is managed by this practice to ensure that suppliers meet the terms, conditions, and targets of their contracts and agreements.

The ITIL story: Axle's supplier management

Marco: *I've been assigned to the supplier management role at Axle. This means I'll be managing the monthly governance forums with our suppliers to track their service performance as outlined in their service level agreements. I'll make sure the contractual obligations of our suppliers are in line with Axle Car Hire business outcomes.*

Radhika: *For example, we promise our customers that the cars will always be clean. We used to have our cars cleaned weekly, but to meet the new service promise, Craig's Cleaning will clean the cars each time they're returned to the lot.*

Henri: *Axle's services depend on multiple partners and suppliers. We work with car dealers and manufacturers, tyre manufacturers, cleaners, and roadside assistance providers. We also have Axle agents who promote our offerings, and partners in a loyalty programme who provide their services to our clients on special terms.*

Radhika: *We use many partners' and suppliers' services for our IT systems as well. This supports Axle's work on many levels, from internet access to*

software development.

Marco: *Greater digitalization at Axle means more opportunity to build IT into our service offerings. The Axle app makes it possible to book and pay for car hire via personal devices. The Axle Aware system is installed in every car and is supported by IT and our partners. Fleet maintenance is planned based on the hire history of our vehicles, and controlled by our IT systems.*

Henri: *Because of this, Axle's business is now heavily dependent on IT and non-IT suppliers. Integrating and coordinating these services is part of supplier management. We expect our suppliers to provide a consistent level of quality for Axle and our customers.*

5.1.14 Workforce and talent management

Key message

The purpose of the workforce and talent management practice is to ensure that the organization has the right people with the appropriate skills and knowledge and in the correct roles to support its business objectives. The practice covers a broad set of activities focused on successfully engaging with the organization's employees and people resources, including planning, recruitment, onboarding, learning and development, performance measurement, and succession planning.

Workforce and talent management plays a critical role in establishing organizational velocity by helping organizations to proactively understand and forecast future demand for services. It also ensures that the right people with the necessary competencies are available at the right time to deliver the services required.

Achieving this objective reduces backlogs, improves quality, avoids rework caused by defects, and reduces wait time while also closing knowledge and skills gaps. As organizations transform their practices and automation and organizational capabilities to support the digital economy and improve speed to market, having the right talent becomes critical.

Workforce and talent management enables organizations, leaders, and managers to

focus on creating an effective and actionable people strategy, and to execute that strategy at various levels within the organization. A good strategy should support the identification of roles and associated knowledge, as well as the skills and attitudes needed to keep an organization running day to day. It should also address the emerging technologies and leadership and organizational change capabilities required to position the organization for future growth.

The idea of managing and developing an organization's workforce and talent is not new. However, with the increased use of third-party suppliers and the rapid adoption of automation for repeatable work, traditional roles are changing dramatically. Because of this, workforce and talent management should be the responsibility of leaders and managers at every level throughout the organization.

Definitions

- Organizational velocity The speed, effectiveness, and efficiency with which an organization operates. Organizational velocity influences time to market, quality, safety, costs, and risks.
- Competencies The combination of observable and measurable knowledge, skills, abilities, and attitudes that contribute to enhanced employee performance and ultimately result in organizational success.
- Skills A developed proficiency or dexterity in thought, verbal communication, or physical action.
- Ability The power or aptitude to perform physical or mental activities related to a profession or trade.
- Knowledge The understanding of facts or information acquired by a person through experience or education; the theoretical or practical understanding of a subject.
- Attitude A set of emotions, beliefs, and behaviours towards a particular object, person, thing, or event.

5.1.14.1 Workforce and talent management activities

The activities of this practice cover a broad range of areas and are performed by a variety of roles for specific purposes, including:

- Workforce planning Translating the organization's strategy and objectives into desired organizational capabilities, and then into competencies and roles.

- Recruitment The acquisition of new employees and contractors to fill identified gaps related to desired capabilities.
- Performance measurement The delivery of regular performance measurement and assessments against established job roles based on pre-defined competencies.
- Personal development An employee's use of published job roles and competency frameworks to proactively plan personal growth and advancement.
- Learning and development Targeted education and experiential learning opportunities using various formal and non-formal methods.
- Mentoring and succession planning Formal mentoring, engagement, and succession planning activities provided by leadership.

Figure 5.14 presents the activities of workforce and talent management.

Figure 5.14 Workforce and talent management activities

Figure 5.15 shows the contribution of workforce and talent management to the service value chain, with the practice being involved in all value chain activities; however, it is a primary focus of plan and improve activities:

- Plan Workforce planning is a specific output of this value chain activity, as leadership and management evaluate their current organizational capabilities in relation to future requirements for the organization's resources, as well as the products and services defined within the service portfolio.

- Improve All improvements require sufficiently skilled and motivated people. The workforce and talent management practice ensures understanding and fulfilment of these requirements.
- Engage Workforce and talent management is closely linked to this value chain activity. It works with practices such as relationship management, service request management, and service desk to understand and forecast changing service demand requirements, and how this will impact and direct workforce planning and talent management activities.
- Design and transition Talent management is important to this value chain activity. Specific focus is given to knowledge, skills, and abilities related to systems and design thinking.
- Obtain/build Talent management focuses specifically on knowledge, skills, and abilities related to collaboration, customer focus, quality, speed, and cost management.
- Deliver and support Specific focus by talent management is given to knowledge, skills, and abilities related to customer service, performance management, and customer interactions and relationships.

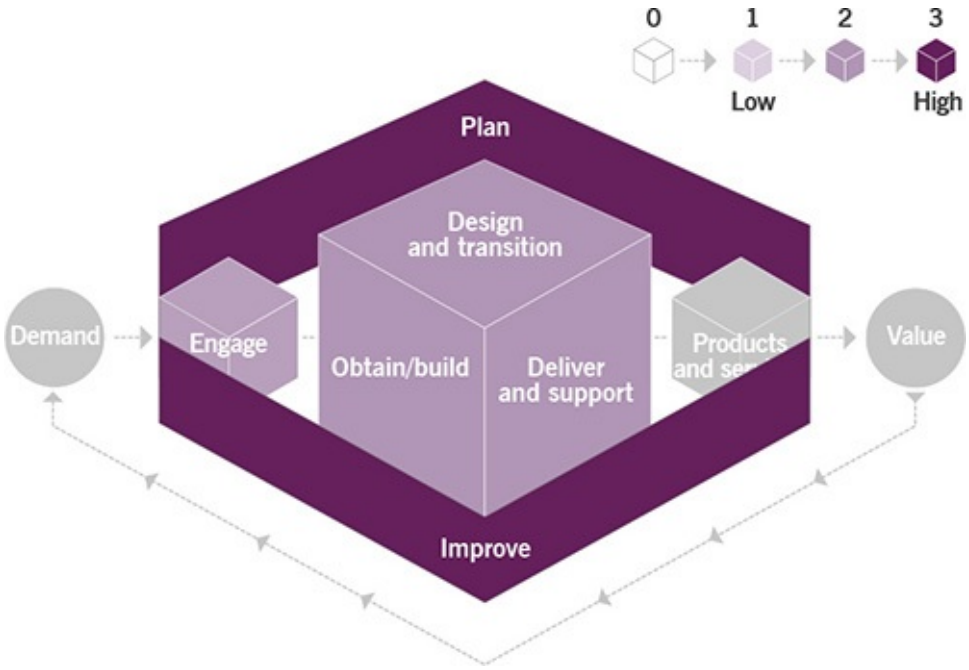

Figure 5.15 Heat map of the contribution of workforce and talent management to value chain activities

5.2 Service management practices

5.2.1 Availability management

Key message

The purpose of the availability management practice is to ensure that services deliver agreed levels of availability to meet the needs of customers and users.

Definition: Availability

The ability of an IT service or other configuration item to perform its agreed function when required.

Availability management activities include:

- negotiating and agreeing achievable targets for availability
- designing infrastructure and applications that can deliver required availability levels
- ensuring that services and components are able to collect the data required to measure availability
- monitoring, analysing, and reporting on availability
- planning improvements to availability.

In the simplest terms, the availability of a service depends on how frequently the service fails, and how quickly it recovers after a failure. These are often expressed as mean time between failures (MTBF) and mean time to restore service (MTRS):

- MTBF measures how frequently the service fails. For example, a service with a MTBF of four weeks fails, on average, 13 times each year.
- MTRS measures how quickly service is restored after a failure. For example, a service with a MTRS of four hours will, on average, fully recover from failure in four hours. This does not mean that service will always be restored in four hours, as MTRS is an average over many incidents.

Older services were often designed with very high MTBF, so that they would fail infrequently. More recently there has been a shift towards optimizing service design to minimize MTRS, so that services can be recovered very quickly. The most

effective way to do this is to design anti-fragile solutions, which recover automatically and very quickly, with virtually no business impact. For some services, even a very short failure can be catastrophic, and for these it is more important to focus on increasing MTBF.

The way that availability is defined must be appropriate for each service. It is important to understand users' and customers' views on availability and to define appropriate metrics, reports, and dashboards. Many organizations calculate percentage availability based on MTBF and MTRS, but these percentage figures rarely match customers' experience, and are not appropriate for most services. Other things that should be considered include:

- which vital business functions are affected by different application failures
- at what point is slow performance so bad that the service is effectively unusable
- when does the service need to be available, and when can the service provider carry out maintenance activities.

Measurements that work well for some services include:

- User outage minutes Calculated by multiplying incident duration by the number of users impacted, or by adding up the number of minutes each user is affected. This works well for services that directly support user productivity; for example, an email service.
- Number of lost transactions Calculated by subtracting the number of transactions from the number expected to have happened during the time period. This works well for services that support transaction-based business processes, such as manufacturing support.
- Lost business value Calculated by measuring how business productivity was impacted by the failures of supporting services. This is easily understood by customers and can be useful for planning investment in improved availability. However, it can be difficult to identify which lost business value was caused by IT service failures and which had other causes.
- User satisfaction Service availability is one of the most important and visible characteristics of services, and has a great influence on user satisfaction. It is important to make sure that users are satisfied with service availability in addition to meeting formally agreed availability targets.

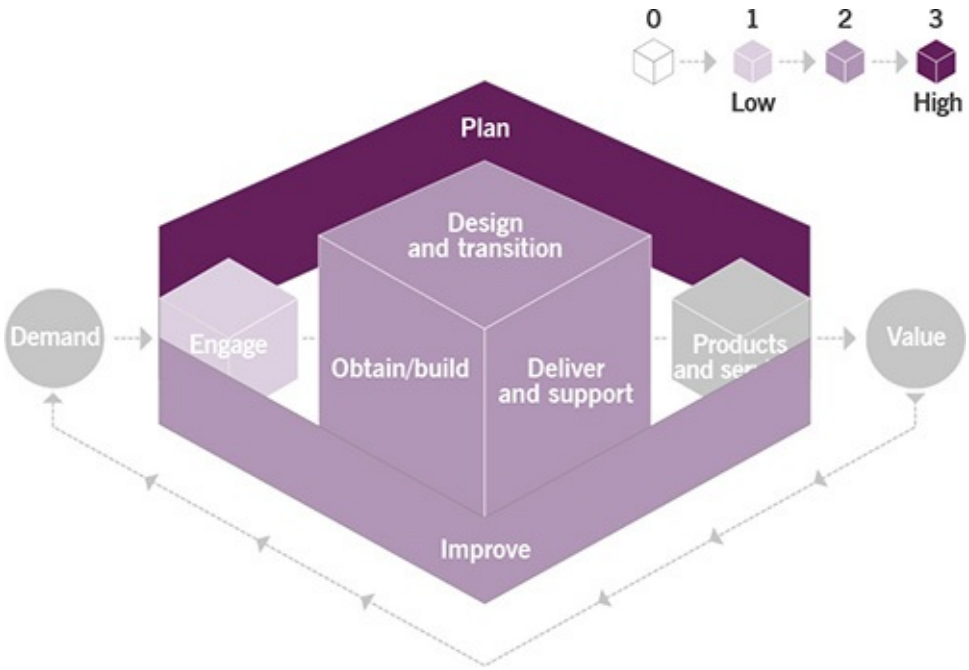

Figure 5.16 Heat map of the contribution of availability management to value chain activities

Most organizations do not have dedicated availability management staff. The activities needed are often distributed around the organization. Some organizations include availability management activities as part of risk management, while others combine it with service continuity management or with capacity and performance management. Some organizations have site reliability engineers (SREs) who manage and improve the availability of specific products or services.

A process is needed for the regular testing of failover and recovery mechanisms. Many organizations also have a process for calculating and reporting availability metrics; however, availability management is driven as much by culture, experience, and knowledge as by following procedures.

Figure 5.16 shows the contribution of availability management to the service value chain, with the practice being involved in all value chain activities:

- Plan Availability management must be considered in service portfolio decisions and when setting goals and direction for services and practices.
- Improve When planning and making improvements, availability management ensures that services are not degraded.
- Engage Availability requirements for new and changed services must be understood and captured.
- Design and transition New and changed services must be designed to meet availability targets and testing of availability controls is needed during transition.
- Obtain/build Availability is a consideration when building components or obtaining them from third parties.

- Deliver and support This activity includes measurement of availability and reacting to events which might affect the ability to meet availability targets.

5.2.2 Business analysis

Key message

The purpose of the business analysis practice is to analyse a business or some element of it, define its associated needs, and recommend solutions to address these needs and/or solve a business problem, which must facilitate value creation for stakeholders. Business analysis enables an organization to communicate its needs in a meaningful way, express the rationale for change, and design and describe solutions that enable value creation in alignment with the organization's objectives.

Analysis and solutions should be approached in a holistic way that includes consideration of processes, organizational change, technology, information, policies, and strategic planning. The work of business analysis is performed primarily by business analysts (BAs), although others may contribute.

In IT, business analysis practices are frequently applied in software development projects, but they are also appropriate to higher-level architectures, services, and the organization's service value system (SVS) in general. To restrict the application of business analysis to software development alone is to run the risk of developing incomplete solutions.

The key activities associated with business analysis are:

- analysing business systems, business processes, services, or architectures in the changing internal and external context
- identifying and prioritizing parts of the SVS, and products and services that require improvement, as well as opportunities for innovation
- evaluating and proposing actions that can be taken to create the desired improvement. Actions may include not only IT system changes, but also process changes, alterations to organizational structure, and staff development
- documenting the business requirements for the supporting services to enable the desired improvements
- recommending solutions following analysis of the gathered requirements and

validating these with stakeholders.

Business requirements can be utility-focused or warranty-focused.

Definitions

- Warranty requirements Typically non-functional requirements captured as inputs from key stakeholders and other practices. Organizations should aim to manage a library of pre-defined warranty acceptance criteria for use in practices such as project management and software development and management.
- Utility requirements Functional requirements which have been defined by the customer and are unique to a specific product.

Business analysis should ensure the most efficient and comprehensive achievement of these activities, but not make the error of analysis without intent of subsequent action. An organization should not attempt to analyse an issue so deeply or for so long that a timely solution cannot be achieved, or try to solve every problem with a single, massive initiative that fails to facilitate value creation in enough time to be of practical use. The processes associated with this practice should guard against these mistakes.

The scope of work for the business analysis practice includes using and evaluating information from operations and support to build knowledge of how the services and practices are performing in the live environment. This knowledge will not only help to identify areas for improvement in the current service design, but also reveal lessons learned that will improve future designs.

The role of business analysis may be defined differently from organization to organization, but it is a recognized discipline with a specific set of skills. Business analysis requires not only critical thinking and evaluation, but also listening, communication, and facilitation skills, the ability to analyse and document business processes and use cases, and perform data analysis and modelling.

When the system or service being analysed crosses many organizational boundaries, it is important that the various business units involved adopt a partner relationship to ensure a holistic analysis and comprehensive solution proposal. If compromises are needed from one or more of these units, a collaborative, partner-like relationship will facilitate a solution that will provide value for all the parties.

Without the right information, business analysis cannot be successful, and to be effective, it needs access to all information related to the area under analysis. For business processes, for example, business analysts will need access to all process documentation, including process flows, procedures and work instructions, policies, and process metrics. They may need to interview not only the person responsible for the business process, but also those who participate in each part of the process to compile a clear view of the process and the related issues.

The technologies deployed usually include whatever system the organization uses to gather and document requirements, as well as project management systems and reporting tools for gathering and processing data and information for analysis. Other technologies that can be of assistance when presenting the results of analysis are visual modelling and mapping tools and features of many of the typical office productivity suites such as spreadsheets, presentation software, and word processing.

As with all practices, business analysis cannot ensure successful solutions in isolation. For example, strategy management practices provide high-level guidance to business analysis, which then directs analysis and solution recommendations. In turn, the recommendations from business analysis can influence technical and other strategies. To ensure the participation of the right parties, business analysis relies on relationship management. Furthermore, the natural progression through the service value chain requires interaction between business analysis activities and those from service design, software development and management, measurement and reporting, and many others.

Figure 5.17 shows the contribution of business analysis to the service value chain, with the practice being involved in all value chain activities:

- Plan Business analysis contributes to strategic decision-making on what will be done and how.
- Improve All levels of evaluation and improvement benefit from business analysis, which is particularly applicable at strategic and tactical levels.
- Engage Business analysis is key to the gathering of requirements during this value chain activity.
- Design and transition Gathering, prioritization, and analysis of accurate requirements can help ensure that a high-quality solution is designed and progressed to operation.
- Obtain/build Business analysis skills are integral to the definition of an agreed solution.
- Deliver and support Data from the ongoing delivery of a service can be part of business analysis activities when designing changes to the service, as well as when looking for opportunities for continual improvement.

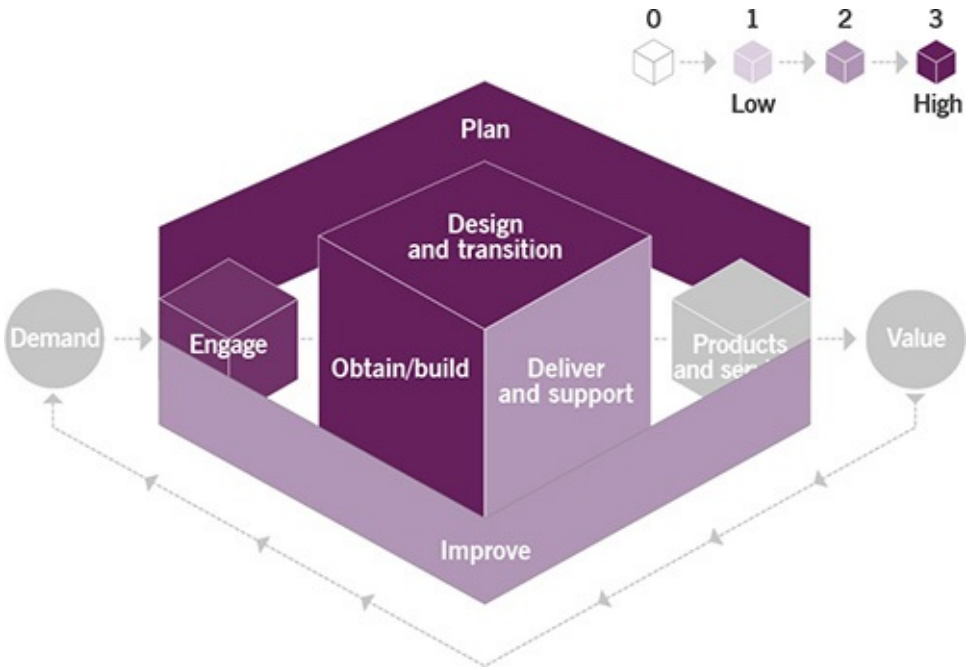

Figure 5.17 Heat map of the contribution of business analysis to value chain activities

5.2.3 Capacity and performance management

Key message

The purpose of the capacity and performance management practice is to ensure that services achieve agreed and expected performance, satisfying current and future demand in a cost-effective way.

Definition: Performance

A measure of what is achieved or delivered by a system, person, team, practice, or service.

Service performance is usually associated with the number of service actions performed in a timeframe and the time required to fulfil a service action at a given level of demand. Service performance depends on service capacity, which is defined as the maximum throughput that a CI or service can deliver. Specific metrics for capacity and performance depend on the technology and business nature of the service or CI.

The capacity and performance management practice usually deals with service performance and the performance of the supporting resources on which it depends, such as infrastructure, applications, and third-party services. In many organizations, the capacity and performance management practice also covers the capacity and performance of the personnel.

The capacity and performance management practice includes the following activities:

- service performance and capacity analysis:
  - research and monitoring of the current service performance
  - capacity and performance modelling
- service performance and capacity planning:
  - capacity requirements analysis
  - demand forecasting and resource planning
  - performance improvement planning.

Service performance is an important aspect of the expectations and requirements of customers and users, and therefore significantly contributes to their satisfaction with the services they use and the value they perceive. Capacity and performance analysis and planning contributes to service planning and building, as well as to ongoing service delivery, evaluation, and improvement. An understanding of capacity and performance models and patterns helps to forecast demand and to deal with incidents and defects.

Figure 5.18 shows the contribution of capacity and performance management to the service value chain, with the practice being involved in all service value chain activities:

- Plan Capacity and performance management supports tactical and operational planning with information about actual demand and performance, and with modelling and forecasting tools and methods.
- Improve Improvements are identified and driven by performance information provided by this practice.
- Engage Customers' and users' expectations are managed and supported by information about performance and capacity constraints and capabilities.
- Design and transition Capacity and performance management is essential for

product and service design: it helps to ensure that new and changed services are designed for optimum performance, capacity, and scalability.

- Obtain/build Capacity and performance management helps to ensure that components and services being obtained or built meet performance needs of the organization.
- Deliver and support Services and service components are supported and tested by performance and capacity targets, metrics and measurement, and reporting targets and tools.

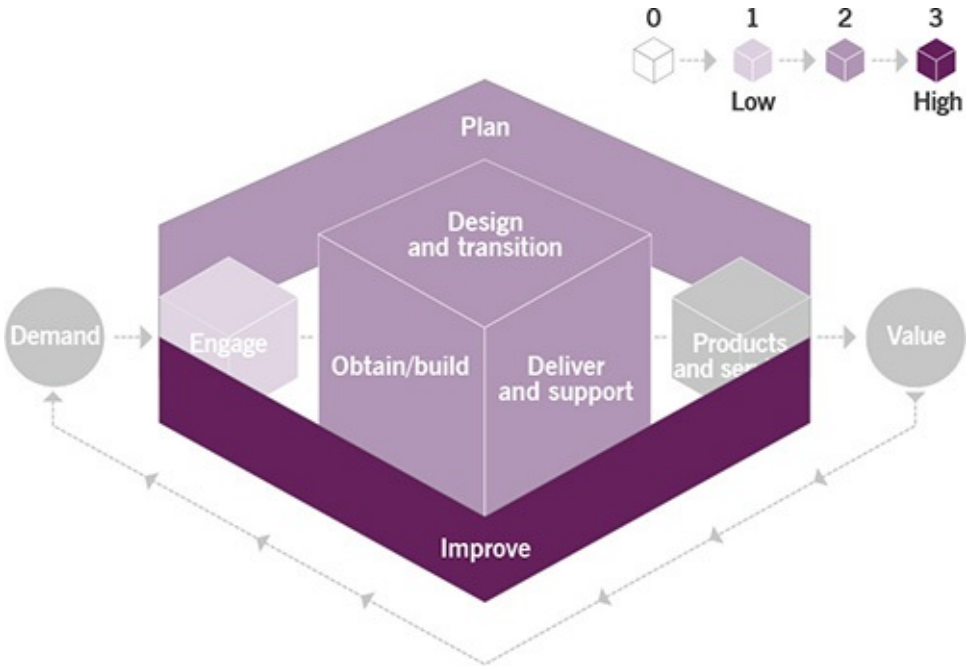

Figure 5.18 Heat map of the contribution of capacity and performance management to value chain activities

5.2.4 Change control

Key message

The purpose of the change control practice is to maximize the number of successful service and product changes by ensuring that risks have been properly assessed, authorizing changes to proceed, and managing the change schedule.

Definition: Change

The addition, modification, or removal of anything that could have a direct or indirect effect on services.

The scope of change control is defined by each organization. It will typically include all IT infrastructure, applications, documentation, processes, supplier relationships, and anything else that might directly or indirectly impact a product or service.

It is important to distinguish change control from organizational change management. Organizational change management manages the people aspects of changes to ensure that improvements and organizational transformation initiatives are implemented successfully. Change control is usually focused on changes in products and services.

Change control must balance the need to make beneficial changes that will deliver additional value with the need to protect customers and users from the adverse effect of changes. All changes should be assessed by people who are able to understand the risks and the expected benefits; the changes must then be authorized before they are deployed. This assessment, however, should not introduce unnecessary delay.

The person or group who authorizes a change is known as a change authority. It is essential that the correct change authority is assigned to each type of change to ensure that change control is both efficient and effective. In high-velocity organizations, it is a common practice to decentralize change approval, making the peer review a top predictor of high performance.

There are three types of change that are each managed in different ways:

- Standard changes These are low-risk, pre-authorized changes that are well understood and fully documented, and can be implemented without needing additional authorization. They are often initiated as service requests, but may also be operational changes. When the procedure for a standard change is created or modified, there should be a full risk assessment and authorization as for any other change. This risk assessment does not need to be repeated each time the standard change is implemented; it only needs to be done if there is a modification to the way it is carried out.
- Normal changes These are changes that need to be scheduled, assessed, and authorized following a process. Change models based on the type of change determine the roles for assessment and authorization. Some normal changes are

low risk, and the change authority for these is usually someone who can make rapid decisions, often using automation to speed up the change. Other normal changes are very major and the change authority could be as high as the management board (or equivalent). Initiation of a normal change is triggered by the creation of a change request. This may be created manually, but organizations that have an automated pipeline for continuous integration and continuous deployment often automate most steps of the change control process.

- Emergency changes These are changes that must be implemented as soon as possible; for example, to resolve an incident or implement a security patch. Emergency changes are not typically included in a change schedule, and the process for assessment and authorization is expedited to ensure they can be implemented quickly. As far as possible, emergency changes should be subject to the same testing, assessment, and authorization as normal changes, but it may be acceptable to defer some documentation until after the change has been implemented, and sometimes it will be necessary to implement the change with less testing due to time constraints. There may also be a separate change authority for emergency changes, typically including a small number of senior managers who understand the business risks involved.

The change schedule is used to help plan changes, assist in communication, avoid conflicts, and assign resources. It can also be used after changes have been deployed to provide information needed for incident management, problem management, and improvement planning. Regardless of who the change authority is, they may need to communicate widely across the organization. Risk assessment, for instance, may require them to gather input from many people with specialist knowledge. Additionally, there is usually a need to communicate information about the change to ensure people are fully prepared before the change is deployed.

Figure 5.19 shows the contribution of change control to the service value chain, with the practice being involved in all value chain activities:

- Plan Changes to product and service portfolios, policies, and practices all require a certain level of control, and the change control practice is used to provide it.
- Improve Many improvements will require changes to be made, and these should be assessed and authorized in the same way as all other changes.
- Engage Customers and users may need to be consulted or informed about changes, depending on the nature of the change.
- Design and transition Many changes are initiated as a result of new or changed services. Change control activity is a major contributor to transition.
- Obtain/build Changes to components are subject to change control, whether they are built in house or obtained from suppliers.
- Deliver and support Changes may have an impact on delivery and support, and information about changes must be communicated to personnel who carry out

this value chain activity. These people may also play a part in assessing and authorizing changes.

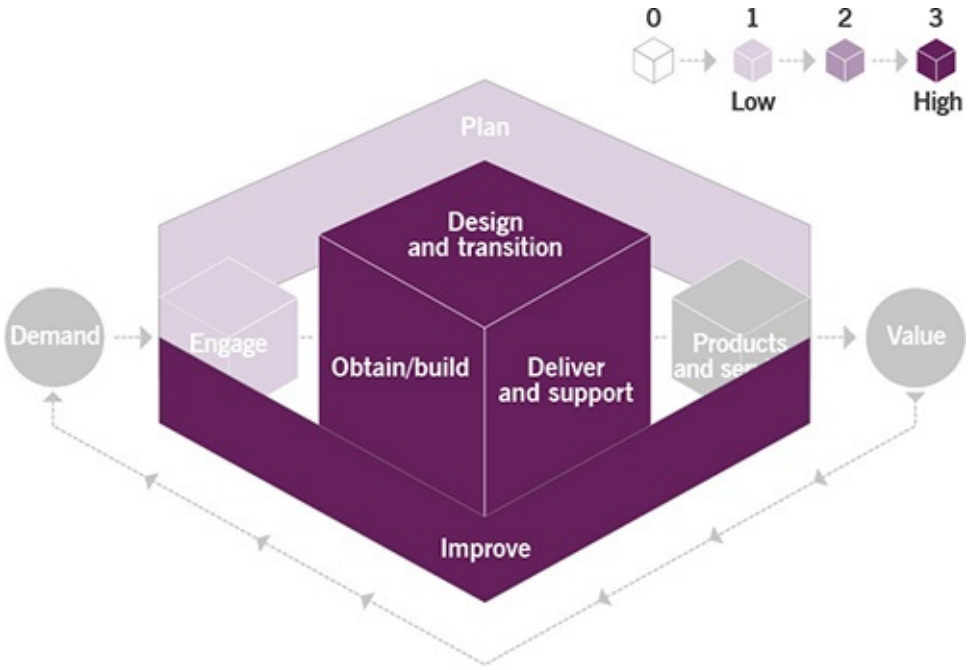

Figure 5.19 Heat map of the contribution of change control to value chain activities

The ITIL story: Change control

Henri: *The car hire market is developing faster than ever. To make sure that Axle meets customer demands and capitalizes on opportunities, we need to have speed-to-market and to experiment with new ideas. Our new service offerings will see a lot of change at Axle. Some teams will need to double, while others may reduce. We need to bring everyone at Axle on board.*

Radhika: *The change control practice at Axle makes sure that our services achieve the right balance of flexibility and reliability.*

Marco: *Some of our processes are highly automated and designed for the fast deployment of changes. These are perfect for changes to our booking app and some of our IT systems.*

Su: *In other cases, such as when we update our vehicles, we use a mix of manual and automated testing. For example, the Axle Aware road monitoring and safety system requires consultation and approval before we can update it.*

Marco: *Systems such as Axle Aware can't be altered like the booking app. The priority for those changes is that we act safely and comply with appropriate regulations. That's more important than time to market.*